

International Development Research Centre

MANUSCRIPT REPORT

Seminar on the Participation of Women in Water Supply and Sanitation Programs

June 1987



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**SEMINAR ON THE PARTICIPATION OF WOMEN
IN WATER SUPPLY AND SANITATION PROGRAMS**

Edited by
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SEMINAR ON THE PARTICIPATION OF WOMEN IN WATER SUPPLY AND SANITATION PROGRAMS

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PARTICIPATION OF WOMEN IN WATER SUPPLY AND SANITATION PROGRAMS

Foreword

On behalf of the International Development Research Centre, the Health Sciences Division and the Social Sciences Division, I would like to express a warm welcome to all of the speakers and the participants at this seminar where we will be discussing the importance of the participation of women in water supply and sanitation programs. As part of the afternoon's activities, the film "A Handle on Health" will be shown, which documents the handpump program of IDRC's Water Supply and Sanitation Sector and the crucial roles women play in this program. Women's participation in water projects varies from being project leaders and program managers to acting as technicians performing what was traditionally thought to be men's work. The carrying out of this work is changing the way women are perceived by their communities in the developing countries and even the ways in which the women perceive themselves.

I look forward to the presentations and discussions this afternoon and am sure that we will all profit from the experience. Then, hopefully, we can use our new knowledge and insights to further the development process, particularly the development of community water supply and sanitation systems, while ensuring equity for all who participate in that process.

Richard Wilson
Director
Health Sciences Division

INTRODUCTION

DONALD S. SHARP

This seminar is a part of the ongoing activities of IDRC's Water Supply and Sanitation Program to highlight the importance of the involvement of community members, especially women, in water supply and sanitation activities. In 1984, a seminar on "Women's Issues in Water and Sanitation" was held in Manila, the Philippines to discuss the problems and constraints that have limited women's participation in water and sanitation activities and to identify ways in which their roles can be enhanced in the future. The seminar identified priority strategies for field testing; helped determine viable projects for funding; and laid the groundwork for the establishment of an informal network of project managers, researchers, international experts and agencies.

The need to involve women in community water supply and sanitation projects has been stated since the beginning of the decade. In 1980, the General Assembly of the United Nations established the International Drinking Water Supply and Sanitation Decade (1981-1990) to promote the provision of safe drinking water and adequate sanitation for all by the year 1990. That same year, the World Conference of the United Nations Decade for Women adopted a resolution that urged member states and UN agencies "to promote the full participation of women in the planning, implementation, and application of technology for water supply and sanitation projects".

However, a UNICEF document published in November 1983 entitled "Strategy Paper for Enhancing Women's Participation, Case Examples of Women's Participation" concluded that despite their important and multiple roles, women were not adequately involved in Decade activities. As

reflected in the literature, the reasons for this are complex and the constraints numerous. This seminar, therefore, will focus on ways to remove the constraints affecting women's participation and on ways to enhance their effective involvement.

Over the past several years, it has become increasingly clear that the main obstacle to the use and maintenance of improved water supply and sanitation systems is not the technology itself but the failure to provide for adequate human and financial resources to promote, manage and maintain water supply and sanitation facilities once installed. For example, in many developing countries where handpumps are the primary means of potable water delivery, not enough attention has been paid to developing and implementing self-sustaining monitoring and maintenance programs. As a result, when pumping systems break down they often remain unrepaired due to the absence of spare parts, trained local personnel and appropriate incentives. In order to safeguard investments and protect public health something must be done. IDRC believes the involvement of women can make the difference.

M. Elmendorf and R. Isely, in their paper "The Role of Women as Participants and Beneficiaries in Water Supply and Sanitation Programs", discuss some of the key roles women assume as they relate to improvements in water supply and sanitation technologies and suggest ways to design projects to benefit from these roles. These are:

- a) **Women as acceptors of new technologies:** Although women have a great deal of decision making power in domestic matters, they are often not consulted when village leaders choose a new technology.
- b) **Women as users of improved facilities:** Once new water supply and sanitation facilities have been installed, their proper use by the community along with an effective maintenance program is essential for safeguarding the health of the population served by these facilities.

- c) **Women as managers of water supply and sanitation programs:** Since women are responsible for domestic activities, they have a vested interest in the provision of safe, adequate, accessible water supply sources for household use. They should be involved in the decision making process as it relates to the type, installation and maintenance of water supply and sanitation facilities.
- d) **Women as agents of behavioural change in the use of the facilities:** Since women play a key role in informal information networks in their community, their knowledge, attitudes and behaviour associated with new water and sanitation technologies can influence their acceptance and proper use, all of which can have an impact on health.

Consideration of these roles necessitates the development of strategies designed to promote the involvement of women in the planning, design, implementation, management and evaluation of water supply and sanitation interventions.

This half-day seminar, jointly organized and sponsored by IDRC's Health Sciences Division and Social Sciences Division, brings together persons who are interested and involved in the planning and implementation of water supply and sanitation projects in developing countries. As well as the presentations by invited speakers, the IDRC film "A Handle on Health" will be screened. This documentary, filmed in Ethiopia, Malaysia, the Philippines, Sri Lanka and Thailand, highlights several IDRC-sponsored projects and illustrates how women are a crucial part of the formula for improving Third World water supply and sanitation systems. The objective of the seminar is to discuss ways of enhancing and pro-moting the role of women in all phases of such projects.

WATER AS A SOCIO-POLITICAL FORCE

ANNE V. WHYTE

I am going to give an overview of the social aspects of water supply and sanitation that may serve as a background for the more detailed discussions to follow. The film we have just seen, "A Handle on Health" is very valuable in demonstrating the importance of involving local people, and particularly women, who are the main carriers and users of water, in water projects. It presents a general lesson in methods for involving the community, and especially women in the introduction of new projects, new technologies, indeed in all new interventions. The film also has a very specific message in relation to water, so I will just structure my comments in terms of the general lesson and this message.

I have for a long time been a proponent of a "user-choice" approach to project development. "User-choice" is a relatively simple concept that embodies a quite radical approach to development. It involves the users in not only the implementation of projects and in the payment for projects, but also involves the users from the outset, in the design of projects and, even more radically, in the choice as to whether that kind of a project is one that they want, at this time, for their community. This last choice is the most difficult one for development agencies to deal with because agency personnel tend to go into a community with fixed ideas and limited mandate about building a road or a school or bringing in a water project. It is therefore usually difficult for them to respond to a decision, based on user-choice, that prefers to have a road rather than a water project.

Within the last decade, users of a technology are increasingly becoming involved in the maintenance of that technology. It is now commonplace

that the maintenance and repair of facilities provided by the projects are in the users' hands. However, if one looks at development as an iterative or continuing process, it is important to get the users involved not only in the initial project but subsequently in the upgrading of the facilities, or in new project initiatives. The installation of a handpump is but an early step in a process of technological innovation and upgrading. If it proves to be of benefit to the people, they will want to upgrade and expand the technology. This means looking at projects as part of a continuous development process, rather than as discrete, isolated events.

Why is user-choice so important? User-choice, more commonly subsumed under the rubric of community participation, is important because it results in more appropriate, more affordable, more acceptable systems. The project itself is thus improved by having the users involved. Certainly greater health and other benefits will accrue to the users if they actually use the system. Littered around the world can be found innumerable water supply and sanitation systems that are no longer used and have fallen into disrepair. Even more important is the longer term view that a success in one project becomes a building block for further development. People, having experienced success, are better able to participate in new projects in completely different areas in other sectors. A successful water project is likely to have benefits for a successful education project or for a successful health project at some other time. The general rationale for a user-choice, participatory approach is that it allows people to not only have a sense of control over their own development but also allows them to internalize the decisions taken as their own, and to adopt the technology as their own.

To come back to my title, "Water as a Socio-Political Force", and why a user-choice approach is particularly valuable for water supply projects: water, or the access to and use of water is one of the most important

socio-political forces in a community. On the one hand, it is a very strong force for cooperation and for social cohesion. It is frequently a shared resource held under common property rights. It is commonly an important vehicle (certainly throughout Latin America) for community organization. Community networks and social structures are often formed around water supply activities. Water sources are also very important meeting places and so the social life of the community is often organized around water sources and water distribution points.

On the other hand water can be a strong force for maintaining social distance, differences and distinctions. An illuminating paper called "Power Comes Out of the Barrel of a Pump", was written over ten years ago on this subject. Water can help to underwrite the control of one group over another group. It can support social and economic hierarchies. The very act of providing water is a common lubricant of social relationships, defining the roles of host and guest, and the means whereby a friend or an enemy is created. Today, these traditional power/prestige relationships based on water ownership and water rights are sometimes transferred to the pump mechanic or the water caretaker. He or she can use or abuse the power that the control of water gives him/her over the community.

The film we just saw, "A Handle on Health", has several important messages. To preserve their impact, these messages have been kept relatively simple. However, there are several other issues that the film does not address. It does not deal with the multi-dimensional character of water quality and water use. It focuses primarily on bacteriological water quality, which is essential for the protection of public health. However, there are other types of quality that are inherent in the overall concept of acceptable water supply.

For example, water can be used in many different ways. It can be used for drinking, for washing utensils, for washing clothes, washing people, including children, for house cleaning, for cooking, feeding domestic animals, and sometimes for irrigating plants around the house and yard. The kind of water that is prized for drinking, water which is clear and cool, is unsuitable for bathing, where warm water is preferred. Consequently, the provision of a borehole to supply drinking water does not solve the problem of water for bathing. For bathing their children, the villagers will almost certainly go to a source of warm surface water such as a canal, stream or pond.

For drinking water, taste is very important. For example, Indians in northern Canada have preferences regarding which lake water is best for making tea. Groundwater often contains minerals and thus has a taste that people don't like. In parts of Bangladesh, the groundwater has a high iron content that turns the rice red, which is unacceptable. These considerations all have to do with water quality that are important to the users and should therefore be understood by project personnel.

The corollary of this multi-use, multi-dimensional aspect of water quality is that multi-purpose water sources need to be considered. Either a single water source should be designed that can fulfill these different needs, or the community needs as a whole should be considered within the framework of alternative water sources together providing the range of water needs.

In conclusion, the provision of water supplies should be considered in its total socio-economic, cultural and political context and questions such as what mediating role does water play in the community need to be asked at the design stage of projects. How does it draw people together? How does it keep them apart? What are their perceived

needs? One of the best ways I know of answering these questions is to take a participatory approach that essentially arrives at a matrix of alternatives for the community to consider. The community members are then guided through a consideration of those alternatives with the costs and benefits of each outlined. Even a community participation or user-choice approach has definite costs. Proponents tend to talk mainly of the benefits, but there are also costs -- of time, personnel and technology -- associated with it that should be assessed.

The recognition that these costs exist, and planning for them, should only strengthen a user-choice approach. In the final analysis, we should be able to offset any such costs against the benefits, not only of an acceptable water supply, but also the participation in a process necessary for development, that of having people make decisions for themselves by themselves.

WOMEN IN HANDPUMP TECHNOLOGY, SRI LANKA

CLAUDIA IDDAMALGODA AND THAMARA DHARMASILI

I will give you a brief account of the sociology, economy and culture of Sri Lanka which will serve as background for the Women in Handpump Technology project that has been ongoing during the past two years. Sri Lanka is an island of 25,000 square kilometers with a population of 16 million. A narrow stretch of sea separates it from the southern tip of the Indian Peninsula.

Although people have lived here since prehistoric times, recorded history begins nearly two thousand five hundred years ago with the first unification of the island into a single centralized kingdom and with the adoption of the Buddhist religion. Today the country remains closely identified with this religion.

The history and culture of the island are most closely identified with the Sinhalese, the principal ethnic group, comprising about three quarters of the population. They are mostly adherents of Buddhism. The other major nationality is the Tamils who speaks the Tamil language and are followers of Hinduism.

Sri Lanka both enjoys the advantages, and suffers the disadvantages, of being a largely rural and agrarian country with a relatively low level of industrialization and in which many traditional institutions still prevail.

The Sarvodaya Shramadana Movement, the largest non-governmental organization in Sri Lanka, was founded in 1958. Its ultimate goal is the awakening of the people, accomplished by a very pragmatic and integrated development program, that starts with each individual and

gradually works up to international levels, passing through the stages of the family, the village and the urban communities and the national units.

It has a deep spiritual foundation based on Buddhist philosophy and it seeks to satisfy the members basic needs through sharing of labour or energy and extending this principle of sharing to include all belongings. The Movement's strength comes from the village level. It is an effective force of change among one third of the population residing in about 8,000 villages, out of the total of 23,000 in Sri Lanka.

The development philosophy of the Sarvodaya Movement, as referred to earlier, is geared to the satisfaction of ten identified basic human needs, of which a clean and adequate supply of water ranks high in importance. It has been shown that 80% of the deaths in Sri Lanka are preventable and most of these are the result of diarrheal diseases caused by impure water. As well it is known that every day an average of 40,000 children die in the world due to waterborne diseases. Therefore it is easy to understand the importance the Sarvodaya Movement has attached to water projects.

For the past five years, the Engineering Division of Sarvodaya has been experimenting with three types of handpumps of the Waterloo design, which can be manufactured using materials available locally and which can be easily maintained. Ten villages were initially selected to participate in the IDRC-sponsored project "Women in Handpump Technology". It is hoped that the project will be expanded to eventually benefit the entire population of 26,619 in the Division of Padiyatalawa.

The general objectives of this project were to demonstrate the capacity of the village women to manufacture, assemble, monitor, and maintain the Sarvodaya handpump in rural villages of Sri Lanka and to field test a low-cost well-drilling technique. The specific objectives were to:

1. establish and equip small-scale village workshops for the manufacture and assembly of IDRC/PVC handpump components;
2. test a low-cost well-drilling technique and establish 50 wells;
3. train women to manufacture and assemble the handpump components and to install 50 pumps in selected villages;
4. train women to monitor, maintain and, when necessary, to repair the installed pump; and,
5. evaluate the quality of the manufactured components and the effectiveness of the maintenance program.

In Sri Lanka the skilled technical work called for by the project is considered to be man's work. However, after a group of motivated, young village women were trained as pioneer technicians in this project, it was shown that women can be equally skillful in this type of work. The Women in Handpump Technology project planned a comprehensive program to train young women in the technology of handpump manufacture, well drilling, handpump maintenance, monitoring and evaluation work. Project activities started at Padiyatalawa Assistant Government Agents Division in January 1984.

Before the project could be implemented however, it was necessary to inform and to motivate the villagers about the proposed activity. This was accomplished under the guidance of the president and elders of the Movement. The next step was to select twenty women from ten villages for training. This was initially problematic as the people did not yet fully understand the value and purpose of the project. The elders' group in each village, along with the district coordinator,

Mahiyanganaya, selected the women to be interviewed. The requirements were that they be between 18-25 years of age, educated up to the G.C.E.O.L. level, have the ability and interest to carry out community development work and be physically fit. Although eventually accomplished, it was quite difficult to find young women who could satisfy the requirements and many were reluctant to take up such non-traditional work.

The engineering section of the Sarvodaya Movement headquarters organized the comprehensive training for ten women, one from each village. During their four months of training, the women were taught both the theory and practice of lathe-machine work, welding, bench fitting, smithy work and general mechanical drawing. The other ten women were trained at the district centre workshops in masonry and well drilling.

During this time the construction of the Padiyatalawa main workshop had begun, with the women doing the masonry work on the buildings. This workshop was fully equipped, with classrooms, an office, a kitchen, a library, first aid facilities, a community hall, and rooms for the trainees. Next the ten women received further training in the assembly, installation, repair, monitoring, maintenance and evaluation of the handpumps.

At the village level Sarvodaya groups were organized and formed Shramadana societies which were entrusted with the construction work of village workshops. They built these workshops according to a set plan, saving money which could later be utilized for further community development work.

As soon as the workshops were put into operation, there was a demand for services such as minor truck repairs and repair of agricultural implements. There has even been a request for the production of agricultural implements such as sickles and knives. This extra activity has enabled the women to earn additional money.

After the workshops were completed, an opening ceremony was held to give the villagers an idea of the kind of work that these facilities were designed to accomplish. The participants were amazed at the skill demonstrated by these women as nowhere in Sri Lanka had such a team been given technological training of this nature. Everyone thanked Sarvodaya for initiating this enterprise. Many of the parents who had been reluctant to send their daughters for training, regretted the missed opportunity.

At Padiyatalawa 28 handpumps were manufactured and assembled from material supplied by the Sarvodaya headquarters. The successful installation of these pumps was now possible due to the technical knowledge the women had gained during their training. The entire process from manufacture to installation took nearly seven months to complete.

The well-drilling work was done by 10 trained women, performing what was again thought to be only a male's task. The selection of sites for 5 wells in each village was entrusted to the village Shramadana society and the women technicians.

Although the project succeeded in achieving its objectives, some problems were encountered in its implementation. These were as follows:

- 1) Difficulty in selecting women for training. This was mainly due to the attitudes of the parents as they did not want their daughters getting involved in such non-traditional work.
- 2) The different aptitudes of the women. Some showed great skill in grasping the techniques and some found the work very difficult. This lengthened the training period.

- 3) Difficulty in obtaining building materials.
- 4) Difficulties in well drilling due to a hard rock layer (ledge) encountered approximately one meter below the surface. Eventually 28 wells were successfully drilled with special equipment adapted for this purpose by Sarvodaya technicians.

To conclude, the ultimate aim of the project was to improve the health and economic standards of the people in the project villages. By bringing a clean supply of drinking water to the villages, the first step has been achieved. The employment of women in what had traditionally been labelled as men's work, was a completely new experience for rural villagers in Sri Lanka. As well as enabling the women to earn an income, this project has also helped in the economic development of these villages. The trained technicians now play vital roles in village development and also serve as liaison officers between Sarvodaya and other extension services that are being made available to the communities.

WOMEN AND WATER: CASE STUDIES FROM LATIN AMERICA AND THE CARIBBEAN

ANDREA DOUCET

In my talk today, I will draw upon my recent work experience for Cowater International in Honduras and Grand Cayman Island, as well as on research conducted while on a CIDA Scholarship in Bolivia and Peru. My experience as a sociologist and development consultant is largely at the grass roots level, working with community groups and women's groups.

This area of work appealed to me because of the obvious enthusiasm and optimism in this field. Especially at the level of UN Conferences from which there has emerged a great many statements, strategy papers, task forces, and steering committees.

And yet, in spite of all this very important and useful information, it appears that many of the international aid agencies and organizations working throughout the world on water supply and sanitation projects have not yet gotten the message about women's roles in this sector. Some aid agencies do not see women nor women's issues as an integral part of water supply and sanitation projects. Others recognize that women have a crucial role to play but they are unsure of how to promote women's participation.

The question how will be dealt with in the following manner:

1. First, how women can and are being involved in the planning stage.
2. Second, three of the chief mistakes or problems that occur in project planning will be identified. These problems are:
 - (i) conceiving the project as largely a technical one;

- (ii) insufficient emphasis on hygiene education; and
- (iii) inadequate coordination of water supply and sanitation projects with other projects.

3. Third, strategies for addressing these problems will be discussed. These strategies involve women as active agents, not simply as beneficiaries.

The first weakness with project planning is that water projects are often conceived as largely technical projects without taking adequately into account the particular cultural context and know-how of the community. Moreover, women's ideas, practices and knowledge are not drawn upon.

In order to deal with this shortcoming, a socio-economic survey should be carried out in the Feasibility Stage of project design. How are women to be involved in this survey? Much of the information should be gathered from women using methodologies such as group discussions, household surveys, by observation and by living with them, (even for just one day). A socio-economic survey is made up of many different types of information, but two types in particular: (i) Economic Information and (ii) Community Needs Assessment.

Economic information, refers to the question: Can the people pay? Or more specifically, "Can the women pay"? This question is particularly appropriate in the many societies where women continue to earn wages which are less than those earned by their male counterparts and where many carry the added burden of being single mothers.

I recently worked in Grand Cayman Island as a sociologist on a pre-feasibility study for a sewerage project. When we arrived - two engineers and myself - I was asked by the local Water Authority: What do women have to do with sewerage? Why is a sociologist involved?

In the course of our pre-feasibility study, we discovered that 20% of the population on the island were living in conditions of abject poverty; 80% of this group (or 16% of the total population) were single working mothers with an average of 3-4 children earning barely subsistence wages.

The Water Authority of Grand Cayman Island had planned to set one household fee for sewerage. Yet, these single mothers could not afford to pay this fee. Thus, the fee had to be adjusted to provide a cross-subsidy for low-income persons. Gathering the appropriate economic information from both male and female heads of households is critical to successful revenue recovery and thus to the success of the project.

Another type of information which should be obtained in a socio-economic survey is a community needs assessment. The felt needs of the community should be determined. Women, as the primary users of water supply and the primary promoters of hygiene should be consulted in the community needs assessment. Mary Elmendorf, for example, has argued that when women are excluded from community needs assessments, water is rarely given as a priority need; where women are consulted, water for home consumption is consistently included as one of three top felt needs. Moreover, different groups of women will see their water-related needs, problems and possible solutions differently, depending on their living conditions.

The following is an example of how women's perceived needs, problems, and solutions are rooted in their particular everyday reality and how these facts should be taken into account in project planning.

In Barrio de Dios, an urban squatter settlement in Cuzco, Peru, the women identified their community needs and priorities to me as the following three: (i) Drainage; (ii) Community Soup Kitchen; (iii) Household Water Taps. When asked if they wanted latrines, the answer was a definite "no".

The women identified drainage as their first need because during the heavy rainy season the human and animal feces, which are deposited in backyards, flow freely along the gravel roads of the village. The children play in this mud. According to the women, this is the chief reason for the sickness of their children. For several reasons, they do not see latrines as the answer to this problem. First, the women migrated to the city from a rural zone called Piujo where nobody had ever heard of latrines. Secondly, the Ministry of Health had conducted a course in the area on the subject of latrines. These courses had been condescending, preachy, and critical of the women's traditions.

A community soup kitchen, as a means of fighting malnutrition and high food prices, was the women's second stated need. The third was household water taps. The community - including the women - had already built five water taps for 250 families. Although there is sometimes the inconvenience of standing in line at the water taps, the women are not entirely discontent with their present water supply. After all, they have the river for washing clothes and bathing; this is the same river where both the children and animals bathe and excrete.

The felt needs and priorities expressed by the women were based on their inadequate knowledge of the relationship between water, sanitation and health, their rural roots, and their past experience with the Ministry of Health.

A water supply and sanitation project in Barrio de Dios could benefit from information gathered in a community needs assessment. The first task for the project planner would be to work with the women in order to help them see the relationships between water, sanitation and health, and thus the need for latrines and household water taps.

In Villa Barrientos, a peri-urban settlement near the city of Cochabamba, the women stated that water supply and latrines were their first and second priorities. Water is a felt need because the community buys its water from trucks. The supply is irregular and unclean and each household can spend up to 50% of its family income on the water. Latrines are also a top need because the women are aware of the relationships between water, sanitation and health. This was due to the fact that many of the women are of urban origin and the Ministry of Health had conducted very good courses in the village.

Because the women have strong felt needs for water supply and latrines, a project could conceivably begin immediately in Villa Barrientos with full commitment on the part of the women's group. They are in fact ready and willing to undertake income-generating projects to help raise money for this purpose. In Barrio de Dios, on the other hand, a project could not start until the women are convinced that household water taps and latrines are important for the health and well-being of their village.

To sum up, economic information and a community needs assessment form a part of a socio-economic survey which can help project planners understand the user population and which can ensure greater acceptance, use, and maintenance of the facilities.

A second common problem is that water supply and sanitation projects do not always include a hygiene education component. This was the case with a project I worked on in Honduras as well as with water supply projects which I visited in Cuzco.

Hygiene education should have, at the very least, the following four components:

- i) It should focus on women and children;
- ii) It should have a participatory approach. This means group discussions with women, utilizing adult literacy classes and the schools, the media, audio visual material, and traditional art forms (dance, drama, puppets).
- iii) Women should not only receive hygiene education but should also be trained to deliver it. This is not limited to women primary health care workers but includes local women trained to promote and teach hygiene education to their fellow villagers. Rather than choose only the literate women to receive training, women who are outspoken on issues of village concern and women who are known to keep clean houses should be recruited.
- iv) Finally, it is true that hygiene education in the form of information and communication is often not enough to promote changes in behaviour. Inputs and complementary materials are also required. For example, it is unrealistic to tell women not to bathe their children in the river if they have no other bathing facilities. After an aid agency in Honduras constructed water supply systems in 100 rural communities, only 19% of the women had built basins for washing clothes and only 15% had constructed showers. Thus many of the women continued to wash clothes and bathe in the dirty river. The women must be informed about how to raise funds for and build these facilities.

A final problem that exists in this sector is the inadequate coordination of water supply and sanitation projects with other projects in the community or area. In Honduras, an aid agency was running four projects on a country-wide basis. These projects were (i) Water Supply; (ii) Watershed Conservation; (iii) School Feeding Program (SFP); and (iv) Maternal Child Health Care Program (MCHCP). Each project was carried out independently. There was no combining of educational materials for the same audience nor an integration of health and hygiene messages.

The MCHCP was reaching women in 1,000 community centers twice monthly with educational materials and discussions and yet the water supply project did not integrate with this project. Women do not have the time nor the opportunity to attend meetings for different projects. A greater integration of programs would mean a greater integration of messages. Women will be more effectively reached and heard.

To sum up, three of the chief weaknesses or problems which exist in the water supply and sanitation sector are:

- i) Conceiving the project as largely a technical one;
- ii) Insufficient emphasis on hygiene education;
- iii) Inadequate coordination of water supply and sanitation projects with other projects in the community.

It is surprising to find that many aid agencies have not yet tapped into women's potential as active agents in this sector. Another fact which surprises me is the following: In many remote villages in Central and Latin America, I have seen that where there is hardly a drop of clean drinking water to be found, the people are, nonetheless, drinking Coca Cola. Why has Coca Cola managed to reach these people and water supply has not?

I think that there are several reasons for this: Coca Cola knows its market. It creates the need. It creates the demand. Moreover, it helps the people to articulate that demand and it makes it easy for them to get Coca Cola. The people know where and how to get it and how much it costs. Every local store is stocked with Coca Cola. They feel comfortable asking for it.

Compared with the water supply and sanitation sector it seems probable that one of the main reasons why water is not being supplied is because the demand is not articulated. Until this demand is expressly stated, water supply and sanitation will remain a low priority for Third World governments, particularly in the rural and urban fringe areas.

Women are the primary users of water supply and sanitation facilities. They are the ones who state that it is a felt need. Yet they do not know how to articulate this need.

In Cuzco, some of the strongest women's groups exist in the urban squatter settlements. They have a concept of "survival strategies" and one of their key survival strategies is community soup kitchens. They have pushed and lobbied the Peruvian government for funds and facilities for these soup kitchens. And they have succeeded. Why? Because women know how to run a kitchen. They know how to cook. They know how much rice and beans cost. They are comfortable in this sector.

Yet they are not pushing for water supply and sanitation. Why? They do not feel technically and financially confident. They are tired of being told by their husbands that water supply is too technical for women. They are tired of being told by the Water Authority that it is beyond their reach.

Women need to be empowered. They need to have the technical and financial know-how so that they will push for their demands. They must have the knowledge and the confidence to articulate their demands. They already have traditional routes for achieving change. In Honduras, women have been known to block the roads to get their demands met. In Peru, they march in the streets. In Pakistan, the women have been known to make things very difficult for the men - in the bedroom - when their demands are not met.

When the primary users of water articulate this demand, when they march in the streets and block the roads, and when they make things difficult for their husbands, then water supply will become a priority sector. Women's needs and demands will be met and women's roles as active agents for change will be fully realized.

**WATER AND WOMEN: EXPERIENCES IN THE VILLAGE HANDPUMP
(PHILIPPINES) PROJECT**

MEDIATRIX P. VALERA

This report will focus on two issues that are central to life in the Philippines. First is water, since it is a basic need in both rural and urban areas. Second is women, because Filipino women have played and continue to play substantive roles in Philippine society. My experience with respect to women and water is based on the implementation of the village handpump project assisted by the International Development Research Centre.

As in many other developing countries, the Philippines has a shortage of clean and reliable water supply sources. In 1985, 28 million people or 82% of the 34 million rural population lacked piped water, and between 12 and 21 million had to rely upon unsafe or unsatisfactory water supply systems. The population depends largely on water from open wells, rainwater cisterns, rivers and streams, many of which are of doubtful quality. UNICEF statistics show that while there were 23,572 public artesian wells in 1980 serving about 4 million people, only 16,000 were operational.¹

The need for clean and adequate water supplies for rural areas has been a concern of both the government and the private sector. While various programs exist, the rate at which new facilities are being provided is less than the rate of rural population increase. In addition, some of the facilities that were planned under rural water supply and sanitation programs have not been properly completed, or if completed, have not been effectively maintained or properly used.

1. Notes on the Rural Water Supply Program of the Philippines, prepared by the Rural Waterworks Development Corporation.

In response to the need for safe sources of water supply in the country, the Philippine Business for Social Progress (PBSP), a private development organization involved in uplifting the lives of the Filipino poor, has helped communities improve their health and environment. From 1978 to 1983, PBSP assisted 23 potable water supply projects that complemented government efforts to meet its target of providing water for every village in the country by the year 2000. Backed by this experience in social development and technology transfer, PBSP sought the assistance of the International Development Research Centre (IDRC) for support to study an introduction strategy for the implementation of a potable water supply project.

Brief Description of the Project Plan

In February 1984, IDRC approved the Village Handpump project, which aimed at developing the abilities of local groups to manage their own water supply project using a village operated and maintained handpump (designed in Malaysia) with below ground parts made of polyvinyl chloride (PVC).

The project covered eight areas in three villages in the Province of Camarines Sur. PBSP implemented the project with the Naga Social Action Centre, an arm of the local Catholic Church which has been active in development work in the region.

PBSP planned to use the community organization approach as a strategy for implementing the project. Through this approach, village groups go through several phases of "awakening" (awareness of existing conditions, priorities and their causes), "empowerment" (acquisition of knowledge, attitudes, skills, and resources to enable them to do something to improve their situation) and "restructuring" (actual planning,

implementation and evaluation of development projects/activities addressed to their identified needs and bringing about changes). The end result of this strategy is that village groups acquire skills that will enable them to successfully manage a project on their own.

Project Results

The initial activity focused on social preparation whereby the groups received orientation regarding the project scheme. Further, community baseline surveys were conducted; organizational-building activities were held; training activities in self and group awareness, leadership, group mechanics, project planning, implementation and evaluation and even small business management were held. In addition there were spiritual activities such as Bible sessions and faith-life experiences.

Technical preparation included identifying handpump sites, water testing and actual training on the technology of the IDRC handpump developed at the University of Malaya, Kuala Lumpur, Malaysia.

Initially the training was conducted for the village leaders by community organization workers and technical officers. Eventually, these trained volunteers and "barefoot" technicians shared their learning experience with other potential pump users in the villages.

A total of 36 handpumps were installed under the project which supplied safe water to about 180 families or a thousand individuals in the selected villages. Minor technical problems were attended to with assistance from the project staff. Over time, the capabilities of village groups to manage their own projects were developed and strengthened. The water project served the communities in two ways - either as an entry point in the organization of groups or as part of an integrated community development program of groups already functioning in the area.

Among the many benefits the villagers derived from the project were: firstly, the technical skills, specifically in the installation, maintenance and repair of handpumps; and secondly, a reduced time spent for collecting water, which allowed more time for other activities. As well, through this introduction strategy the villagers developed a sense of ownership and responsibility for their handpumps.

An important off-shoot of the project was that the villagers were motivated to begin other related activities such as gardening, and health education sessions.

Project Replication

Towards the completion of village handpump project, PBSP responded to the call of the President of the Philippines, Mrs. Corazon Aquino, for business people to assist in the task of nation building. In collaboration with its member companies and interested business people, PBSP conceptualized what is now known as Tubigan ng Kalayaan (Water of Freedom) project. This project involves the development of water resources such as springs, rainwater catchment systems and the installation of handpumps in selected areas, following the implementation scheme of the recently-completed village handpump project. Tubigan ng Kalayaan covers areas with perennial water supply problems while PBSP works with local village structures (cooperatives, development foundations, social action centers) in managing these projects.

The Role of Women in the Project

When the village handpump project was approved, it did not focus on the involvement of women. However, as it developed, women expressed an interest in serving as planners, implementors or beneficiary participants.

Experience in implementing the project showed that indeed women "made a difference". Following the findings of Dr. Mary Elmendorf and R. Isely as discussed in the IDRC-sponsored Women and Water Issues Conference in Manila in 1984, the project enabled women to assume the following key roles:

1. Women as acceptors of new technologies: To start the project, baseline surveys were conducted not only to describe the communities and to highlight the health status and water supply situation but also to determine the potential acceptance of the handpump and willingness of the villagers to participate in the project. Although this was initiated by the community organizations, women leaders volunteered to help out with the interviews.

Once oriented and informed, the women in the communities expressed interest and enthusiasm in the program. They met to discuss and plan activities, formed special water committees and accepted various responsibilities regarding program implementation. They actively participated in the technical training, community organization activities and sessions on group dynamics and project management. They expressed enthusiasm to know more about the new yet simple handpump technology.

The women assisted in the surveys and decided on the pump sites in consultation with the Technical Officer. They were also consulted on the selection of the project participants, even on the direction of the pump spout. On one instance, the drillers had to transfer to another site upon the suggestion of a woman who had a superstitious belief that a well in that particular spot would never yield potable

water as a black bird flew across the sky while the drilling was progressing.*

2. Women as users of improved facilities: Women actively participated in the technical training, pump installations, and actual maintenance and repair. Realizing the value of safe water, the women (without prompting) called on the local sanitary inspector from the Ministry of Health to visit the well sites and chlorinate the water. Subsequent to this visit, the women, based on instructions given to them by the sanitary inspector, carried out the chlorination procedure on their own.

During the pump installations, women prepared food, helped by carrying construction materials and cleared the area where construction was taking place. After the pumps were installed, procedures were established regarding the use, maintenance, and repair of the pump. They also helped to monitor the pump according to the project's protocol.

Women were also responsible for the safekeeping and proper use of the repair tools and manuals. They also collected fees for maintenance. It is interesting to note that the women set aside a certain amount of their earnings from their income-generating activities (initiated by the project) for the pump's maintenance and repayment. An attitude often expressed was that since it is the task of women to cook and launder, it is also their responsibility to assure the proper use and maintenance of the pump - as the water delivered is meant primarily for domestic purposes.

*editorial note: Although these may appear to be minor concerns, failure to take this type of information into consideration can lead to the failure of a project.

3. Women as managers of water supply and sanitation programs: The project team was composed mainly of women. Among these were: the Principal Investigator, the Research Officer, the Community Organization Supervisor and the Field Coordinator, as well as most of the co-workers and volunteers.
4. Women as agents of behavioural change in the use of facilities: Since the majority of the project participants were women, they were assigned to teach other users (members of their families and others in the neighbourhood) regarding proper pump usage, maintenance and proper use of the water to protect it from contamination. We believe this made a positive difference as far as community acceptance is concerned.

It is apparent from the foregoing report that women are closely related to water projects: they are the carriers of water, the gatherers and users of water as well as the caretakers of water systems. Based on these experiences, I recommend that we:

- ensure women's active participation in the planning, implementation and evaluation of water projects;
- consider women when water technologies are designed;
- develop women's abilities to manage water projects through appropriate training.

In every water project, therefore, "cherchez la femme" (look for the woman), for she makes a difference.

THE CUSO EXPERIENCE
WOMEN AND WATER IN THE VILLAGE WATER SUPPLY PROJECT, TOGO

LISE BOUCHER

Togo is a tiny West African country sandwiched between Ghana and Benin. Its economy is essentially rural with 80% of its approximately 3 million population engaged largely in subsistence farming. According to the Government of Togo's Third and Fourth National Plans, which together cover the period from 1976 to 1985, "water is the first priority around which all other programs will gravitate, because water constitutes the primary need. If this need is not satisfied, all other programs are more or less doomed to failure. The country will be covered by a network of wells. The consequent gain in time and improvement of health will permit an increase in productivity which will result in raising the level of life and welfare of the Togolese people". Consequently, Togo approached several donors, including the Government of Canada, during this period for assistance in meeting its target of 3500 wells by the year 2000. From this initial approach the village water supply project was developed.

This project, which began in September 1984 and will run until March 1987, is concentrated in the districts of Sio and Yoto in the Maritime Region of Togo. The Maritime Region was chosen because it is the one with the lowest percentage of the population with access to a safe water supply (18% in 1981 compared with the national average of 35%) and Sio and Yoto districts were selected because they are the ones with the highest incidence of dracunculosis, or Guinea worm, a debilitating water-borne disease. The project is jointly funded by the Canadian International Development Agency (CIDA) and the government of Togo, and is executed by the Canadian University Service Overseas (CUSO) in

collaboration with the Togolese Ministry of Social Affairs, Public Health, and the Status of Women. The project has three principal objectives:

1. to provide adequate and safe water supplies for 65,000 of the rural inhabitants of Sio and Yoto districts, primarily through the drilling of 200 productive tubewells but also through the development of alternative water supply sources in dry villages and the repair of existing pumps from previous drilling projects. A condition for selection was that villages be prepared to assume the financial and technical responsibility for maintaining the systems;
2. recognizing that health benefits are not automatically realized by the simple provision of a safe water supply, to mobilize villages not only to participate in sanitation and health education activities but also to address felt needs within the communities through collective action. To this end a fund for the financing of micro-projects, both in sanitation and income-generation is provided;
3. to establish an extensive training program at all levels of project activity to help improve skills of host-country personnel and to ensure that the benefits of project initiatives in the villages will continue after the project is completed.

At the time that CUSO agreed to take on this project, the organization had no previous experience in large scale water supply projects. CUSO was however, aware that previous water projects had been only partially successful because they had failed to provide the local population with an understanding of the health, technical and financial implications of their new water supply and with a program of financial support that

would allow them to ensure their continued maintenance. As a result, pumps broke down quickly and, once broken, were seldom repaired. People returned to their former source of, more often than not, unsafe water, leaving the well standing as a monument to development aid. CUSO did not want its wells to be monuments.

CUSO officers had enough experience in other community development programs to know that the Village Water Supply Project would not succeed unless the communities involved were committed to maintaining their new water supply.

In Togo, as elsewhere in Africa, women and water are inextricably linked. Women are the prime providers of water for drinking, washing, and cooking. Everyone's health suffers from a poor water supply, but women pay a heavy price not only in terms of their health, but also in terms of time, energy, money, education, and productive employment. They would be the ones to suffer most directly from a pump breakdown. They are also responsible for child education and have recognized abilities in money management. It therefore made sense that women should be encouraged to take a meaningful role in the project and that any barriers preventing them from doing so should be removed. That was a given. The question was how to obtain this participation. If good health does not automatically occur with the provision of a clean water supply, then it stands to reason that women's participation would not occur simply because CUSO wished it.

Part of CUSO's strategy was to make women visible as staff of the project.

The project has a bicephalous structure with a Project Director, a Canadian, and a National Project Coordinator, a Togolese. The

coordinator is a woman seconded from the Ministry of Social Affairs, with extensive experience as a rural animator with the Rural Women's Centres network in Togo and with previous experience on another rural water supply project funded by USAID. She is committed to seeing that women achieve a minimum of 50% participation in the project.

In addition, a Canadian woman was hired as Engineer-Hydrogeologist, responsible for the existing pump rehabilitation program. She worked at the national, district and village levels with government officials, village leaders and villagers.

Animation and education in the villages began in May 1985, long before the arrival of the drilling rigs in April 1986. It is planned to continue through to the end of the project. Social animation and education is carried out by 41 Togolese field agents, 22 of which were seconded to the project by the Ministry of Social Affairs and 19 hired directly by the project. They are divided into five teams, each of which is responsible for covering a specific zone in the project area. Of those field agents hired by the project, eight or slightly less than half, are women. Two of the six team leaders are women. These agents are the project workers who work most closely with the villagers.

In December 1985, representatives of the Women's Department in the Ministry of Social Affairs and of the National Union of Togolese Women undertook a widespread campaign of sensitization to the role of women in the project. They toured the project to make contact with the presidents of women's groups as well as traditional chiefs, to promote the participation of women in the village development committees and to see that the message was well delivered.

The linch-pins of the project are the village committees, which will remain after the project is completed. These local organizations have responsibility for setting up and maintaining a fund for pump maintenance, managing the village water supply, promoting better health and sanitation practices in the villages, and initiating projects and activities according to the priorities identified by the villagers. About half the members on these village committees are women, and many hold elected positions. As a rule, the treasurers are women. In each village two pump caretakers were identified; at least one of whom was a woman. At present, about 60% of the pump caretakers are women. Project personnel will train these caretakers in weekly and monthly preventive maintenance procedures, as well as how to diagnose and repair simple failures.

In addition, at least half of the income-generating micro-projects supported by the Togo water project are directed towards women. One-third of the income generated by these projects is to be deposited in the village treasury, another third will go to various village initiatives, such as schools or clinics, and the final third will be invested in the next income-generating project.

At this time, 123 of the 200 planned wells have been drilled, and the remainder are scheduled to be completed by the end of December 1986. Four pilot projects for alternative water supply systems are being constructed: 3 rainwater catchments and 1 large-diameter well. Fifty of the 100 pumps slated for rehabilitation have been repaired. Sixty-three agricultural micro projects and one weaving project are generating income. Four pilot family latrine projects and a major health education campaign, entitled "Our Water", have just been launched.

The major technical component of the project will be completed by the end of March 1987, but it is evident that the community aspect has really just begun. It is clear that water can be a starting point for other community development activities and a focal point for community organization. CUSO is now negotiating with CIDA for funding for a three-year follow-up phase which will consolidate the achievements of the project to date and expand on them. This extension phase will provide support to the village development committees, continued support for income-generating and sanitation micro-projects, for refining of the pump maintenance program, for further health education campaigns, and for constructing alternative water supply systems. It goes without saying that promotion and support of women in project activities will continue to be important during this phase. It is only with and through women's participation that there can be hope of finally resolving the problem of rural water supply not only in this region of Togo, but elsewhere.

FROM VANCOUVER TO OTTAWA: 1976-1986

MARY ELMENDORF

It is really wonderful to be here at this seminar and to hear about all the things that are happening with regard to the participation of women in water supply and sanitation activities. Although there are lots of things that haven't happened yet, after listening to the speakers this afternoon I am more aware of the progress that is being made. It is particularly encouraging to learn about the follow-up activities to the 1984 IDRC Manila Conference on "Women's Issues in Water and Sanitation", where ideas and preliminary proposals for projects were presented. Several of the projects discussed at that conference have since been implemented.

It was exciting for me to hear Andrea Doucet's presentation about women's roles in water supply and sanitation in Latin America and the Caribbean and to hear her use the word "empower", a word I and others have used. The importance of empowering women lies in the fact that when in control, women are able to make decisions to effect changes that will improve their lives and the lives of their families and community members. I also found the Togo project extremely interesting for the way in which it involved African women in its water supply and sanitation activities. The Sri Lanka project, which I have been following since its beginning, is extremely innovative in the way it involves women in technology transfer.

In preparing for my brief talk here this afternoon, I looked through numerous different documents and notes to see how far we had progressed and where work was still needed. I would like to try to pull some of those loose ends together.

The plea for water was not voiced globally until 1976 when, at the Vancouver Habitat Conference, after intense lobbying from a group led by Barbara Ward, the United Nations adopted the target of "Clean Water for All by 1990".

To ensure to every village and city safe drinking water and reasonable sewage disposal...a need so basic and human that not even the most indifferent or arrogant of ruling groups could block it...
(Barbara Ward, The Home of Man 1976)

World consciousness on the need for clean water was raised by "Water Day" when many of the delegates demonstrated by carrying pails of water on their heads. "What on earth has water to do with settlements?" a delegate asked. The answer of course, is that water is the key resource for all human settlements, a truly basic need for humanity.

Following the Conference, Gilbert White prepared an issue paper that asked the question, "Was clean water by 1990 an impossible dream?" Was it Utopian, impractical or could that goal be accomplished? The paper stated that the technical problems - sewage recycling, irrigation, disease control and water management - could be solved. The financial outlays needed, according to the 1976 estimate, represented an investment of \$3.00 per year for every man, woman and child in the developing countries for the installation of water supplies and excreta disposal by 1990. The contribution from the industrialized countries (according to 1976 dollars) amounted to a mere \$0.30 per year for each man, woman and child.

Of course this has not happened and will not happen by 1990. Even if the required funds had been made available, what was needed as well as political will. As Don Sharp and others have stated, it is not just money that is needed, but political will, and also the active

participation of the communities involved. So we see that what really is needed is international political will to stimulate national political will and support, the development of more appropriate technologies and the involvement of communities - including the involvement of women at all stages of project implementation.

I looked back at the statements made at the three United Nations Women's Conferences. At the 1975 World Mexico Conference of the United Nations Decade for Women, Third World women were talking about their need for water. Many of the women from developed countries felt that this was not an important enough subject to be discussed. They felt that women's rights, especially legal rights, were the appropriate issues. At that Conference, developing country women stated that other needs, such as the need for domestic water, should be satisfied first. At the 1980 mid-decade Conference in Copenhagen there were several official statements, seminars and workshops on water at the Forum, but it was at the 1985 Nairobi Conference ending the Women's Decade that the women of the world really gave high priority on their need for water.

At the UN Conference at Mar de Plata in 1977, which I attended as a US delegate, water and water resources were examined in their broad context as global resources. However, little consideration was given to water for domestic use. The delegates were considering water for hydro-electric power, water for dams and water for agriculture. FAO was the one UN Agency that brought forward the need to consider village water supplies to meet human domestic needs. The FAO felt that the much smaller amount of water required for domestic consumption could be easily satisfied as a by-product of irrigation. However, today nearly ten years later, in reviewing the current literature on irrigation we find that costly irrigation projects, which produce abundant supplies of water for agricultural uses, seldom make provisions for a source of domestic water supply. The women and their families on the projects

have to make do with using the contaminated water collected from the irrigation canals for their domestic needs. Only rarely do irrigation projects pay attention to this important aspect which, if properly addressed, could do much to improve family health and productivity.

It was the representatives of the non-governmental organizations (NGOs) attending the Mar del Plata Conference who presented a formal statement outlining the important relationship between water supply and women. This statement was later picked up by delegates attending the Copenhagen Conference and incorporated into the goals of the International Drinking Water Supply and Sanitation Decade. I find it enjoyable to go back and look at these statements and see them become part of the official rhetoric, but that's usually where it stays. Rhetoric, however, is not enough.

A most exciting statement was made at the Low-cost Community Water Supply Seminar in Abidjan, in October 1986. The Abidjan statement, endorsed by representatives from 30 sub-Saharan countries as well as health specialists and participants from governmental and non-governmental agencies, was as follows:

Lasting health and economic benefits for the rural and urban-fringe populations of Africa can be achieved through increased community management of water supply and sanitation systems based on proven low-cost technologies. African governments and donors are urged to identify and commit adequate resources and provide all necessary support for the direct involvement of communities in choosing, managing and paying for their water and sanitation systems.

It is important to make statements but these should not remain just words without action. I have just come back from Guatemala where I visited a project called "Women, Water and Health". There were no women

involved, no attention was paid to women, nor were there linkages to other projects in which women played a role. In addition, there was no community participation. The project concentrated solely on the installation of water systems.

We must be careful, even in projects such as the Philippine Village Handpump project and the Sri Lankan Women in Handpump Technology Project that we do not let the technology control the community. Anne Whyte referred to this when she talked about "user choice". Often there is only one technology that might be appropriate for a given situation, but it must be presented to the community in such a way that enables it to be chosen by the users and then to become something that belongs to them - "the choice of the users".

We see that many positive events are occurring such as this workshop and previous workshops, seminars and conferences. We have reached a point where the whole issue of women's participation is supported and has become an important aspect of development. Where do we go from here? Where will we be ten years from now? Will we be talking about Vancouver to Ottawa to where? Will we reach the point that Barbara Ward and others were talking about, when everyone has access to a safe water supply? Were they dreamers or can we get there? I think we can, but it will take the hard work of people in organizations such as IDRC and CIDA, and intergovernmental and non-governmental organizations as well as the people in the field.

Thank you for including me in this challenging seminar.

SUMMATION

EVA M. RATHGEBER

One of the most interesting aspects of an afternoon like this is the opportunity to meet people with similar interests and who are working in the same subject area. The presentations were informative and varied. What we would really like to do now is to get your reactions to all of the very interesting presentations that we heard in the first part of the afternoon. As a means of facilitating the discussion I will quickly run through what I perceive to be some of the key issues that have been raised by the various speakers.

There were five broad issues that occurred to me during the five minutes I had to prepare this summation; there probably would be many more if I had had a longer time to reflect. First, there was a discussion of the issue of choice. It is important that when donor agencies, including NGOs, become involved in a project they have a clear perception of the people who are going to be affected by their projects as participants in the development process and not merely as the unwitting recipients of a technology or service that they are not particularly interested in receiving. In other words, if having a road is a high priority for a community, then maybe we should be prepared to listen to people say that they need a road rather than a water and sanitation supply system.

Donors should be responsive to needs, rather than try to impose their own ideas and ways of doing things. I think that this is a difficult realization for all of us to come to terms with although we tend to pay lip service to it. In actual fact it is very hard to listen to the ideas of others particularly if they are different from one's own, when one considers oneself an expert in a certain area because of qualifications or training.

A second point that emerged is the necessity for women to participate right from the very beginning in water and sanitation supply projects or in any other development projects in which they are key recipients. They should be encouraged to participate in the planning of a project and in choosing the technology that will be introduced into an area. They should be involved in the actual installation of handpumps. They should be involved in the maintenance and repair of those handpumps and in any project spin-offs, such as those in the area of community development. In other words, we must see participation as an on-going process. The opportunity to participate in a water supply and sanitation project will give women the chance to acquire new knowledge and new skills which will then permit them to participate in other development projects and activities where they can use those skills.

A third issue that came out was the importance of the participation of NGOs, particularly locally-based NGOs, in community development projects. It is not enough that local governments are involved and certainly not enough that international donor agencies are involved, however well-intentioned these agencies are. The best knowledge of local culture, conditions, customs, and taboos belongs to people who are born and raised in the area and these people can often be found working in locally-based NGOs. I think that we, although well-intentioned foreign donor personnel, can never hope to match their level of understanding. Locally-based NGOs, indeed national NGOs in general, often include women in their power structures. Lise Boucher made that point very well when she described the participation of women in the Togo project.

Another related point, and it is one that Mediatrix Valera mentioned in her discussion, is that governments often learn from and follow the initiatives of NGOs. This is what is happening in the Philippines, where a locally-based NGO involved in a handpump project now has

produced impressive results which were brought to the attention of the government; what is more, the government is acting upon them.

A fourth point that was raised in the papers presented this afternoon, was the necessity to recognize water as a social issue. Too often the provision of water supply services has been seen primarily as a purely technical undertaking to be carried out by an engineer and his assistants who dig a well and install a pump and voilà, the village has a new water supply. Too often, without proper maintenance, the equipment breaks down after a short period of time, and the villagers revert to their traditional water sources. I think a point that all of the speakers have underscored is that water is a social issue and that women are the primary users of domestic water supplies. Since women usually have the responsibility of providing for family water needs they must also be involved in the decision making regarding water supplies at all levels. We have heard that women can learn the necessary technology related to the provision of water supplies. In fact I think that this is perhaps the easiest part. We heard a very fine example of that in the paper presented by Claudia Iddamalgoda and Thamara Dharmasili on the project in Sri Lanka. Women, given the opportunity to learn technical skills, will learn them.

A fifth and final point that I wanted to make concerns the issue of spin-offs from empowerment. The involvement of women in the provision of water supply services can be seen as a beginning for the empowerment of women. It can lead to the participation of women in other important areas, such as income-generating activities. A reliable village water supply can give women more free time so that those hours that were formerly spent in walking long distances to collect water for their families can now be spent in other areas of endeavour, such as education, income generation or in different aspects of caring for their children, or family welfare. At the same time this empowerment builds

self-reliance and confidence in the participants in the water supply project. It allows them to be seen in a new perspective in their roles as community members. Again, this was brought out very well in the Sri Lankan case where women who formerly were regarded as being unable to take care of small technical jobs are now being called upon, presumably by men, to repair agricultural machinery and to manufacture bits and pieces of farm equipment. One thing that struck me in the film "A Handle on Health" was a scene in which women were busy in the workshop. While they were welding and doing technical work, there was a man in the background unloading a truck. Unskilled labour. I think the point is that when women are given the opportunity to become involved in these kinds of projects, they move to a position where they can be seen as partners in the development process and not just in a support role as cooks, child minders or unskilled agricultural labourers. At the same time they are placed in positions where they are more able and open to absorb the kind of information that Andrea Doucet mentioned in her presentation - hygiene education, different kinds of knowledge and community development processes.

As we start the discussion, I would be interested to hear what you think are some of the critical problems to be addressed when considering programs that include women, as equal members of their communities. What are some of the gaps in the research in what we know about the relationship between women and water supply and technology? How can we begin to bridge those gaps and how can we as a Canadian donor agency, work with other agencies within the donor agency network, be they NGOs or governmental organizations, in Canada or in developing countries, to try and further the empowerment of women?

DISCUSSION

Following the showing of the film "A Handle on Health" and the presentations by the invited speakers, the floor was opened for questions and discussion. Many important issues were raised that included the following:

1. The need for large-scale water projects with community involvement.

The specific examples presented during the seminar are exciting but, with the exception of the CUSO Water Project in Togo, they are relatively small-scale, involving perhaps only a few dozen pumps and a few hundred people. What is needed now is to replicate and to multiply these projects to begin to address the need for water by thousands of people. Each of the projects had strong international support but there is a limit to international support. Since people in developing countries won't solve their water and sanitation needs if they are forever dependent on external experts and external aid, it is now necessary to determine how the experience gained in these relatively small projects can be taken and used region by region and country by country without development experts.

2. The need for community involvement to ensure the long-term success of water supply projects.

The installation of a new water supply is really only the beginning of a successful water supply project. Over the long term, the people in the communities served must take responsibility for these projects. This aspect should be built into projects from the start.

In the Philippines, the PBSP uses the community organization strategy, to ensure community involvement. For continuation of their water projects, they are looking for both community and government support. The inclusion of a basic social services program at the community level is part of the strategy of PBSP's participatory approach.

3. The need for government support when demonstration projects are replicated on a larger scale.

In the Philippines, the PBSP has shared its knowledge about handpump technology and its successful community involvement approach, with the government. As a result, representatives of the government have visited its projects and requested PBSP to undertake a management consultancy for the Rural Water Works Corporation where the importance of community organization in the implementation of water projects was shown. Although several Philippine government agencies and PBSP have coordinated their efforts in the water sector, the process still needs to be formalized. Clearly, private sector initiatives can complement government efforts but must do so without getting bogged down in bureaucratic red tape and delays. The PBSP sees its approach as responding to community needs, offering them the appropriate technology, but allowing the community to take over after a time. It sees that approach as contributing to government efforts but not totally taking over the government function.

In Sri Lanka, unlike in the Philippines, the private sector is not generally involved in the provision of water supplies. The government mainly takes responsibility for major water supply projects, not small-scale handpump projects.

4. The role of the private sector in community projects.

The question was raised as to whether the private sector should retain the initiative and keep water supply projects within its domain. Since Coca Cola is successfully marketed even in remote areas, perhaps a similar marketing strategy could be applied to water supplies. However, several participants cautioned about the potential draw-backs to the marketing of a water supply system, i.e., having the users pay for the service. It was pointed out that some communities and some individuals within communities might not be able to afford to pay for this essential commodity.

5. The need for more attention to be paid to "software" issues.

The kind of work that is being done in the Philippines and in Sri Lanka is the really difficult development work, which should be receiving more attention and recognition. Money seems to be available for the building of dams and the drilling of deep wells but less is available for the "software" issues of community involvement, motivation and education. Development workers must pay more attention to what people in the villages really want. Often, water is women's number one issue, but when is it going to be the number one issue, of the development agencies?

6. The need for the engineers in the water supply and sanitation agencies in developing countries to be oriented in the social aspects of the provision of water supply.

The opinion was expressed that the real bottlenecks to community involvement and the involvement of women in water supply projects are the developing country engineers. They are technology oriented

and just want to get the job done, that is, to build the dam or treatment plant or other component of a water supply project and are not really interested in the long-term continued functioning of the technology. They also have little interest in supplying low-cost handpumps to rural areas unless large contracts are involved.

It was also stated that there were several examples of good projects using the participatory approach in Africa which could be used to convince engineers of the practicality of such an approach. As an example, the situation at an IDRC-sponsored manpower conference in Malawi was mentioned. The participants from Malawi had explained their water program which was both successful and used the participatory approach, but this information was received with skepticism by other delegates. However, field visits to the work sites convinced the skeptics of the success of this approach.

7. The importance of the commitment by donor agencies to addressing the issue of women's roles in development.

A number of donor agencies have made positive statements about the need to involve women in the development process and to ensure that women's needs are not overlooked. This includes CIDA, The World Bank, UNICEF, UNDP and others.

8. The relationship between successful development projects and the involvement of women.

There is a need for more documentation regarding the involvement or lack of involvement of women in community development projects and to relate this to the success or failure of a particular project.

9. The need to evaluate the impact of the acceptance of women as technologists.

In Sri Lanka, women technicians have made a difference in changing the attitudes of the people of the community regarding the role of women and their capabilities. When projects that involve women are evaluated, it is important to look at the impact of those women on their communities, and their relationship to other women and men in the community in order to provide information regarding any improvement in social status, employment and income.

10. Concern about equal pay for men and women performing similar community tasks.

Often, women are asked to participate in village projects on a volunteer basis, whereas men are often paid for such community work. This has been an area of concern for many of the seminar participants who recognize the need for women and men to be paid equally when performing similar tasks such as that of a pump caretaker or other technical work. Even expecting women to voluntarily prepare and provide meals during project activities may be imposing an added hardship. Often, such a contribution is not recognized or even counted while a man's time in building a structure or carrying rocks might be. This replicates the economic structure of many households where work which is performed by men is compensated and work which is performed by women, for the family, does not have an economic value attached to it. It is therefore important that at the outset of the project there is discussion and agreement regarding the expected contribution by each member of the community.

In certain instances, it may even be necessary to exempt one or more community members from the required participation, such as providing volunteer labour or paying a share of the project costs.

11. The need for mechanisms to facilitate community involvement in water supply projects.

Often governments will bring in a water supply and expect communities to participate by paying for it when they have not been involved in the initial planning of the project. As they do not feel they own the project, the rate of repayment is usually low. Mechanisms should be put in place so that people can participate in and pay for their water systems, at least in part. In parts of Thailand, for example, the PDA developed a revolving fund system, where the community pays for not only the construction of rainwater tanks but also 85% of PDA's costs of implementing and administering the program.

Non-governmental organizations or private sector associations such as the PDA and the PBSP who have experience in cost-recovery systems and who have experience in implementing the software packages that are necessary to keep a technology going over the long term need to collaborate with governments to provide this expertise that governments lack.

WOMEN, WATER AND TECHNOLOGICAL CHANGE IN DEVELOPING COUNTRIES

MARY ELMENDORF

At the 1975 United Nations Women's Conference in Mexico, while many women from Canada, Europe and the USA were raising issues about equal rights, Third World women were reminding us all of the need to reduce unnecessary suffering from death and poverty, from uncounted hours of drudgery - hauling water and wood, caring for sick and dying children as they and their husbands struggled to build a better world. The need for water - for drinking, for health and dignity, for home gardens, for animals, for food production - was raised as a basic need.

This plea for water was heard again in 1980 at Copenhagen and had become a loud chorus by the 1985 Nairobi Women's Conference. In panel after panel at the Forum, accessible, safe water for domestic uses was listed as a primary need. Why is water so important? Those of us who can so easily turn on our taps can also easily forget water is a critical (basic) resource, necessary for human survival. Women as the providers and managers of domestic water are the key to its most effective use in improving the quality of life.

Safe, accessible water with related sanitation empowers women by:

- releasing them from unnecessary drudgery in their domestic roles;
- improving their health and that of their families;
- decreasing their losses of time and energy;
- increasing their employment/income generating opportunities;
- leaving more time and energy for leisure or other activities;
- and so:
- making them less "unequal partners" in development.

With all the potential benefits to be derived from improved water supply and sanitation facilities, why is the problem of water still so acute and why is the situation getting worse?

As Agarwal et al. noted in the 1982 Earthscan Bulletin (Vol 4, No. 6):

As the IDWSS Decade began in 1980, over half the peoples of the Third World did not have safe water to drink. Three-quarters had no sanitation at all - not even a smelly bucket latrine...And the situation is getting worse. About 100 million more Third World people were drinking dirty water in 1981 than in 1975. And 400 million more than in 1975 had no sanitation.

Population growth aggravates the problem; but also funding for water programs has decreased. In another article in the Earthscan Bulletin (Vol 6, No. 4, 1983) authors S. Chauhan and K. Gopalakrishnan point out that "both UN agencies and national governments have quietly scaled down their targets. For instance, between 1977 and 1981, the World Bank lent US \$572 million on average each year for water and sanitation projects. In 1982 it approved loans totalling US \$441 million, a mere 3.4% of total World Bank lending. Originally, the Bank had pledged US \$700 million each year through the Water Decade. The record of many other major development agencies is similar." In spite of these reductions in levels of capital assistance to the sector some agencies, such as IDRC, CIDA and UNDP, are still concerned about water and sanitation and see the many linkages between women, health and development.

Another reason the situation has continued to deteriorate is that many of the water and sanitation systems introduced in the 50s and 60s failed because they were based on transplanted western technology with accompanying high capital and operating costs. These largely urban systems also served few families and at mainly high per-capita expenditure.

When Warford and Saunders in their classic 1976 World Bank study "Village Water Supply" pointed out that 50% of the rural water supply systems built in the last five years, including handpumps, were inoperable or unused, people started asking questions.

One thing that happened was that aid agencies such as the World Bank, IDRC, UNDP and others began a critical assessment of water supply and sanitation technologies meant for Third World use. Our five gallon flushes and misuses of limited resources were clearly not the answer. What were the appropriate technologies? Why were pumps unused or broken? What good are improved technologies if they are not properly used or useful? As David Bradley of the London School of Hygiene and Tropical Medicine said "It's easier to change the technology than human behaviour". Appropriate technology (alone) was not the answer.

It had become overwhelmingly clear that the main obstacle to the use and maintenance of improved water and sanitation systems was not the quality of technology but the failure to understand the need to train and involve local people in the use and management of those technologies. Another obstacle was the failure to capture community-wide interest in the projects.

Engineers know how to build improved water and sanitation systems; health specialists understand the relationship between the multitude of diseases related to water and sanitation; and planners and economists know how to develop schemes and projects; but this understanding and know-how again are not enough. Increasingly, development agencies are turning to social scientists as they seek techniques for involving communities in defining and solving problems related to water and sanitation. It must be remembered that it is people who must accept and maintain new technologies. In international and national organizations the buzzwords for the recognition of this are "community participation" or "user-choice".

Since 1980 there has been increasing realization of the importance of women's involvement as a part of community participation. Before that the emphasis had been on the impact of improved water supplies on women's lives. But now has the emphasis shifted to the impact of women on water projects?

As part of their "invisible" roles as wives and mothers, women are the principal managers of water and wastes in the domestic sphere. Whereas in most communities men exercise positions of authority in the public domain, women often have a great deal of power in decision-making, particularly in decisions that impinge on the domestic domain. In fact, within their traditionally defined roles women, individually or in groups, develop strategies to reach valued community goals as well as domestic ones. In order to exercise this decision-making power effectively and to make considered choices about changes in traditional activities, women need knowledge about alternatives. Information about these alternatives is often presented by male outside agents in the public domain, even though it may primarily affect domestic activities. For instance, agents may deal only with defined "leaders" when discussing plans for improvements in water supply and sanitation, without being aware that most of the real choices are made by women, the primary users.

A woman as individual, mother, wife, and kinswoman on the one hand and as worker, producer (of income, goods and services), and community member on the other, moves into and out of the private and public spheres, but finds all these roles, even the latter three, usually concentrated in the private domain.

The four key roles women play in relation to domestic water and household sanitation are:

- women as acceptors of new technologies;

- women as users of improved facilities;
- women as managers of water supply and sanitation programs;
- women as agents of behavioural change in the use of facilities (see annex V for elaboration).

In analyzing the factors that influence the adoption of any technology, great effort must be made to understand the many constraints and uncertainties. Costs and benefits are not limited to economic factors. We must be aware of perceived costs and benefits from the users' point of view. Better words would be advantages and disadvantages or satisfactions and dissatisfaction. For village people, health benefits are not immediately evident so that these alone rarely influence technology transfer. Other things such as convenience, or even taste or smell are often more important factors.

As Barbara Rogers has pointed out, women are very sensitive to direct incentives for innovation and will respond positively to any technology which reduces their work load or increases their cash income. Improvements in domestic water supply and sanitation should be able to do both.

Also, women and men will make sacrifices and change their behaviour if they think their children will have a healthier, better life. Safe, accessible water and sanitation can help bring about this goal while reducing women's second drudgery - needless hours of care for sick and dying children.

As Eddah Gachukia of Kenya pointed out at the 1984 IDRC-sponsored Manila Conference*, a primary constraint to women's involvement in water and

* See IDRC-236e "Women's Issues in Water and Sanitation. Attempts to Address an Age-Old Challenge". p.14.

sanitation projects is that women have not thought themselves capable of gaining the technical skills needed for actually managing and maintaining new technologies. When a technical system breaks down, they do not seem to know what to do. The important thing therefore is to mobilize women, to get them involved, to break down the myth of female inferiority. Training women as water technicians will inspire other women to overcome their sense of inadequacy and serve as positive examples for the community.

The two IDRC-sponsored projects illustrated by the film we have just seen, "A Handle on Health", provide us with some general lessons that can be applied to other water and sanitation programs.

Some lessons learned from the Philippines Project

- that the Philippines Community Organization Model can be specifically tailored to water and sanitation projects, using the four key roles of women as guides in program planning;
- that community organization techniques can be streamlined to reach water and sanitation objectives in most communities within a much shorter time frame than more generalized projects;
- that the water and sanitation projects can be springboards for related activities such as health and nutrition and income generation, using the basic infrastructures developed;
- that effective demonstration projects with promotion and support of women integrated into well-designed community organizational technique, can have national impact with applicability and diffusion possible on a global basis;
- that women as project directors, trainers, and field supervisors can work effectively with both men and women, and with governmental and private organizations.

Some lessons learned from the Sri Lanka project

- that women can take on new roles in their communities without losing social status;
- that mechanical technologies do not have to be sex-stereotyped by introduction to males only;
- that young women, born into traditional societies, can participate in projects like this. They may have to, but can, get permission from their parents, from their friends, to take part;
- that working with and through national NGOs, like Sarvodaya, which has developed an infrastructure and community support system, helps remove constraints, such as the permission to become involved in an innovative project for women in technology transfer;
- that technical training for women ensures self-reliance and self-sufficiency, especially in those areas where women's roles are already acknowledged, such as providing and managing water for household use;
- that communities seem to have accepted these young women who can become change agents, as they and the pumps together help people benefit from more accessible, safer water. **Two handles for health!**

THE ROLES OF WOMEN IN WATER SUPPLY AND SANITATION TECHNOLOGIES

MARY ELMENDORF

The roles that women play in relation to domestic water and household sanitation are described below. The four key roles include women as acceptors of new technologies, women as users of improved facilities, women as managers of water supply and sanitation programs, and women as agents of behavioural change in the use of the facilities.

1. Women as Acceptors of Improved Water and Sanitation Technologies*

Women are the primary users of any water system, whether new or traditional. Their domestic managerial role means that in food preparation, washing and bathing, women are the key mediators between the water source and household demand. Any planned change in water availability or excreta disposal should be based on information about their present knowledge, attitudes and practices. Careful intense observation and discussion, not just standard surveys, are needed to elicit perceptions and beliefs about water preferences and defecation behaviour.

The choice of water for drinking, cooking, laundry, bathing and other household functions is a result of women's careful decisions, based on what they have learned from their mothers and grandmothers, and on

*For a complete elaboration of this subject, see Elmendorf, Mary L. and Raymond B. Isely. 1983. Human Organization 42 (3): 195-204.

their observations of the costs and benefits, both social and economic, of any change of system. Often choices are based on sensory or macroscopic perceptions - colour, taste or smell - rather than microscopic qualities of technical purity.

Water-related beliefs and practices vary from country to country, and even from region to region within countries, yet there are a number of similarities. Taboos on the use of latrines by both sexes or the idea that stools of small children are innocuous and therefore need no special handling are recurring themes. Other cross-cultural examples of fears and constraints are numerous. Furthermore, limited attention has been given to matters of local pride and aesthetics with respect to incentives for the introduction of excreta disposal facilities.

2. Women as Users of Improved Water and Sanitation Technologies

A central question confronting each new water and sanitation project at the threshold of its execution is whether or not those for whom it is intended will use the new facilities. Regardless of the excellence of construction and function, new facilities will not achieve their objectives if they are not used. In the frequent preoccupation with ultimate outcomes of water and sanitation installations, these questions may be over-looked. Although women are the primary users of water the world over and the key agents in establishing the link between water and more sanitary household installations, they are often not singled out for the intensive user education so necessary for project success.

Although reduction of water-related diseases is one of the primary justifications for water supply projects, water is only one

requirement for maintenance of good personal and domestic hygiene. Increased quantities of water will not necessarily result in improvements in health status without other changes in behaviour.

Contaminated water used for bathing, cooking, washing food can transmit diarrheal diseases, but diseases such as shigellosis and rotavirus infections also may be transmitted through non-water borne routes, particularly contaminated food. In addition to the supply of safe water, therefore, there must be a combination of efforts to provide waste disposal facilities and education on proper personal and food hygiene practices to the public (especially women).

3. Women as Managers of Water and Sanitation Facilities

Women are usually managers of household water supplies. Whether it is recognized or not, they also have a strong potential role as managers of community water supplies. Women are bound more tightly to the household than their male counterparts, who must often leave the home or community in search of work. Women are usually responsible for obtaining water and seeing that water sources are maintained. Women thus make ideal candidates for training in tasks associated with the management and maintenance of community water supply and sanitation facilities.

Several tasks in the maintenance and repair of facilities must be learned by someone in the community: monitoring systems for leaks and other defects, testing water quality, keeping a stock of spare parts, overseeing a small budget, doing routine maintenance and minor repairs, maintaining liaison with authorities and technical services, and training other community and household members in the care and upkeep of facilities. Women, as those who already exercise

considerable influence over water supplies, are in a good position to benefit from training for such tasks. In Angola, where women have been recruited as water source monitors, the breakdown rate has fallen decidedly. In Bangladesh, the women pump caretakers had higher performance records than their male counterparts. In Sri Lanka where local women have been trained to manufacture and install handpumps as well as maintain them, there are indications of increased acceptance and hopes for continuous operation. Armed with such skills, women can plan for more accessible and more reliable water sources for their households and communities, and communities can acquire an increased sense of owning the water supply or sanitation facility.

4. Women as Agents of Behavioural Change in Water and Sanitation

Women as diffusers of information about improved water and sanitation technology and as agents of behavioural change must be taken into account in planning for project outcomes, both within households and in community-wide efforts.

In the process of behavioural change the importance of women, both those within and outside the community, becomes even clearer when we consider that changing traditional behaviour depends on an understanding of the reasons why changes are beneficial, and that women are often the gatekeepers of local customs. When the necessary information for such change is on taboo subjects, which are perceived as extremely private and personal, the exchange of such information tends to occur only between individuals of the same sex who usually share other characteristics such as social status, language and beliefs. Such taboos significantly limit the effective dissemination of new and sensitive information of critical importance for hygiene such as information on infant care, defecation practices and the

disposal of feces. Women in a community and in a household form a critical network for this kind of information exchange.

Furthermore, women in their roles as mothers and homemakers must receive such information in terms which are closely related to their current beliefs and attitudes about such matters. Infant care practices, including ways of disposing of infant excreta and hand washing, are developed over time within the framework of beliefs, customs and availability of water. When water supplies are improved, women must be trained in the effective use of the new facilities. Training should also include the use of ancillary equipment, such as buckets, basins and soap. Groups of local women can discuss with a local health worker new ways of doing their daily chores to save time and energy while learning how to improve personal and household hygiene. Some of the women could participate in income producing activities such as soap-making or distribution of needed new equipment.

Women themselves are aware of the time and energy spent in obtaining the family's daily water supply, time and energy which could be used in more productive and rewarding tasks. Many of them, however, are not aware of possible alternative sources of water or of how to become involved in improving existing supplies. By including women early in the project planning stages, development personnel and planners can ensure the participation of women and thus benefit from their involvement, and in turn, communities will benefit by having safe, reliable water supplies.

**THE IDRC APPROACH TO WOMEN'S INVOLVEMENT IN
WATER SUPPLY AND SANITATION PROJECTS**

DONALD S. SHARP

The Health Sciences Division's Water Supply and Sanitation Sector has for several years been active in promoting women as project leaders, engineers and managers. In addition, the sector has supported research projects that examine the role of village women in relationship to the installation and correct use of water supply and sanitation facilities. At the same time IDRC's Social Sciences Division has supported research which has examined, both directly and indirectly, the participation of women in development. This Division has funded research related to migration, demography and educational opportunities for young girls and women at all social levels.

The Centre's approach is therefore two-fold: to seek out and promote women as project leaders; and to develop projects to examine women's role and participation in water supply and sanitation initiatives at the village level, as it pertains to development. In this task, the Centre collaborates with other international agencies, including the UN Development Fund for Women, the International Reference Centre in The Hague and UNICEF.

To give you some background on the film, since 1976 IDRC has supported research on the development of more effective pumping systems for rural water supplies. The approach taken was to systematically examine the implications of new materials and improved designs. In view of the widespread introduction of plastics technology, particular attention was focused on the polymer resins, specifically polyvinylchloride and high density polyethylene.

It was found that the advantages of plastics are:

- 1) it does not corrode;
- 2) it eliminates the problem of off colour and off taste;
- 3) it is easy to mass produce;
- 4) it is inexpensive and readily available in most developing countries;
- 5) it is easy to assemble and install; and,
- 6) with well designed molds - problems of quality control are minimized.

The IDRC-sponsored design work centered on developing a simple, low-cost PVC piston and foot-valve assembly. These below-ground components -- the piston and foot-valve -- were designed to be interchangeable, thus saving labour costs in manufacture, simplifying maintenance procedures, and keeping the required number of spare parts to a minimum.

The results of this first phase prompted IDRC to investigate mass production processes and carry out further field tests in other developing countries under varying social, economic and environmental conditions. In addition important software aspects such as; community acceptance schemes, instructional packages such as installation and repair manuals, financing schemes and maintenance schemes were investigated. It is within this context that the importance of including women in all aspects of the technology development process became evident.

Based on the results of these projects, the results of further laboratory tests at the University of Malaya, Kuala Lumpur, Malaysia, and commissioned tests at the Consumers' Association in the U.K. several design modifications were made to enhance the pump's durability without increasing its cost to the consumer.

The pump that is seen in the film "A Handle on Health", is called the UNIMADE Mark I pump. (UNIMADE means University of Malaya developed.) Some of the enhancements to this design, called the Mark II are also in the film. IDRC is now sponsoring tests on the Mark III pump which incorporates an improved piston and foot-valve, and all metal above ground components to increase the pump's durability. This model will also be tested in India and China for deep-well use.

At the present time, the third and final phase of IDRC-support is being planned, i.e. a network of projects aimed at disseminating the technology to the rural poor by bringing it to the mass production (commercialization) stage. This involves the implementation of a scheme designed to promote local manufacture. The goal of this phase is to set up and test a mechanism for establishing self-sustaining handpump production units and delivery systems, in other developing countries. The projects in Sri Lanka and the Philippines will be used as models to assist in the wide-scale dissemination of the technology.

Accompanying the Phase III projects is the establishment of a Research and Training Centre, at the University of Malaya. This centre will demonstrate to potential manufacturers from both the public and private sectors, as well as to the villagers themselves, all aspects of the technology related to the design, manufacture, assembly, installation and maintenance of the PVC handpump. The Centre will be equipped to carry out further research on this pump as well as other pumping devices, and will serve as a focal point for disseminating the technology to other countries. Marketing surveys and social marketing schemes will be promoted. In addition, safeguards to quality control, and pricing guidelines, will be established through appropriate licensing agreements.

In Phase III, IDRC intends to examine two approaches to local handpump manufacture. One is centralized, topdown approach - the conventional large-scale producer. The other is a decentralized, bottom-up approach, with the critical components manufactured centrally under strict quality control. Other components, such as the above-ground structure will be produced at the village-level, or perhaps subcontracted to cottage industries.

The strategy behind the decentralized approach is to introduce manufacturing and assembly procedures to indigenous, non-governmental organizations already installing handpumps or implementing water and sanitation projects, in hope that they can succeed where other larger, foreign-based organizations have not. Again, the Sri Lankan project shows how women can be involved in this process.

Also, it is believed that maintenance problems (which are universal) can be solved by involving the NGOs. These organizations have an appreciation of the technology as many are already involved in the introduction of water supply technologies and as well have a better sensitivity and understanding of complex social, cultural, political and economic constraints that could inhibit the successful introduction of a technology.

Since the staff of these NGOs often come from the communities they serve, their reputation and future activities in those communities depends upon their success in keeping the handpumps operational. In keeping with their mandate to assist the rural poor they have a vested interest in providing a service - without profit.

They have the time, motivation and commitment to sensitize and involve the community in the project as well as to provide important hygiene education and technical training. They also have experience and

knowledge in job creation and the development of cost recovery systems which is important if the technology is to be sustainable.

It should be stressed that IDRC sponsors applied research projects that are carried out in developing countries by developing country researchers. The IDRC approach has been to encourage local researchers to look at the handpump as a system; a system not limited to the technical aspects alone, but a system which includes those social and economic interactions that can determine its long term success. It is not anticipated that there ever will be a perfect pump, a standard design that functions well under all operating conditions nor an introduction strategy that never fails. Also, it is recognized that because the Malaysian handpump works well in Malaysia it doesn't necessarily mean it will work well in Africa. It is only one of several technical options. However, these low-cost IDRC projects demonstrate what can be done and hopefully will serve as an example to the aid agencies, International and Indigenous Non-Governmental Organizations, Ministries of Health and Water Resources. IDRC also hopes that its contribution to the Decade will generate interest for further investigations aimed at promoting self-reliance in the introduction of safe water supplies in developing countries.

To summarize, IDRC believes that the involvement of women can make a difference, both within the community - in the planning, introduction and maintenance of water supply systems, and also as project managers. They are often more sensitive to the issues than men, more aware of the constraints, and, as end-users, have an interest in the system's continued operation.

IDRC does not believe that women's involvement means finding more work for women to do. Rather, our aim is to explore women's potential as leaders and decision makers.

AGENDA

November 13, 1986
INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
Ottawa, Ontario

12:00 noon	Reception	
12:30 pm	Lunch - 16th Floor	
1:30	Welcoming Address	Richard Wilson
1:35	Introduction to Seminar	Donald Sharp
1:40	Film Presentation "A Handle on Health"	
2:10	Presentation of Papers:	
2:10	Water as a Socio-Political Force	Anne Whyte
2:20	Women in Handpump Technology - Sri Lanka	Thamara Dharmasili Claudia Iddamaloda
2:40	Women's Roles in the Improvement of Water Supply and Sanitation in Latin America	Andrea Doucet
2:55	Village Handpumps - The Philippines	Mediatrix Valera
3:10	The CUSO Experience - Women and Water in the Village Water Supply Project, Togo	Lise Boucher
3:25	From Vancouver to Ottawa: 1976-1986	Mary Elmendorf
3:40	Coffee	
3:50	Summation	Eva Rathgeber
4:30	Discussion	Donald Sharp and Eva Rathgeber

ANNEX V

INVITED SPEAKERS

- Lise Boucher - is an administrative assistant on the West Africa Desk at the Canadian University Service Overseas, in Ottawa.
- Thamara Dharmasili - is a full-time employee of the Sarvodaya Movement in Sri Lanka and presently works as the field supervisor of the IDRC-sponsored project, "Women in Handpump Technology" in that country.
- Andrea Doucet - is a community development consultant employed by Cowater International, in Ottawa. She has extensive field experience in Central and Latin America.
- Mary Elmendorf - is a well-known American anthropologist who has promoted an enhanced role for women throughout the water supply and sanitation decade.
- Claudia Iddamalgoda - specializes as a consultant in education sociology, and is presently working as a consultant for the Sarvodaya Movement in Sri Lanka.
- Eva Rathgeber - is a Senior Program Officer in the Science, Technology and Energy Policy Program, Social Sciences Division, International Development Research Centre, in Ottawa. She is also coordinator of the Women in Development Unit at IDRC.

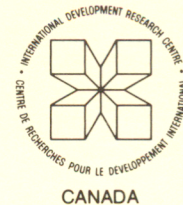
- Donald Sharp - is the Associate Director of the Water Supply and Sanitation program, Health Sciences Division, International Development Research Centre, in Ottawa.
- Mediatrix Valera - is employed by the Philippine Business for Social Progress and presently works as the principal investigator of the IDRC-sponsored project, "Village Handpumps" in the Philippines.
- Anne Whyte - is the Director, Social Sciences Division, International Development Research Centre. She previously worked at UNESCO in the Man in the Biosphere Program and at the Institute of Environmental Studies at the University of Toronto.
- Richard Wilson - is the Director, Health Sciences Division, International Development Research Centre. He previously was at the Tropical Diseases Research Program of the World Health Organization in Geneva.

List of Participating Organizations

Representatives from the following bilateral and multilateral agencies and non-government organizations were invited to attend the seminar.

- Canadian Hunger Foundation
- Canadian International Development Agency (CIDA)
- Canadian Public Health Association
- Canadian University Service Overseas (CUSO)
- CARE Canada
- Catholic Organization for Development and Peace
- Centre Canadien d'Etude et de Cooperation Internationale (CECI)
- Health and Welfare Canada
- International Development Research Centre (IDRC)
- MATCH International
- North South Institute
- UNIFEM
- Unitarian Service Committee of Canada (USC)
- United Nations Development Program
- World University Service Canada (WUSC)

A Handle on Health



A FILM
FROM
IDRC

Promoting self-reliance in handpump technology

Thousands of people in the developing world die each day for lack of access to clean water and proper sanitation. Women and children spend hours and waste energy each day in back-breaking labour, bringing home water that is often contaminated.

A Handle on Health shows how this burden can be lifted by actively involving the community in a new approach to the delivery of safe water. The projects featured in the film — in Ethiopia, Malaysia, the Philippines, Sri Lanka, and Thailand — demonstrate how simple, durable handpumps can be designed, tested, and manufactured in developing countries with low-cost materials, providing employment opportunities and saving scarce foreign exchange. The film also shows how women, the Third World's primary drawers of water, are helping to ensure a safe, uninterrupted supply by taking control of water delivery and are maintaining and even manufacturing their own handpumps.

The 27-minute film, produced by IDRC's Communications Division, is available in English and French. As listed below, 16-mm prints may be borrowed or purchased. Video cassettes in NTSC, PAL, or SECAM signal systems may be purchased in U-matic, VHS, or Betamax formats.



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A Handle on Health can also be borrowed from some Canadian Embassies or High Commissions in developing countries.

